

**MPR 8070.1
REVISION C**

**EFFECTIVE DATE: November 30, 2017
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MARSHALL PROCEDURAL REQUIREMENTS

ED01

ADMINISTRATION OF MSFC TECHNICAL STANDARDS AND MSFC STANDARD DATA REQUIREMENTS DESCRIPTIONS

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DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Change/ Revalidation/ Canceled)	Document Revision/ Change	Effective Date	Description
Baseline		4/17/2009	
Revision	A	11/17/2009	In Table of Contents deleted Figure 1, re-labeled Figure 2 as Figure 1, and moved Figure 1 after Chapter 4. In P.2 updated applicability statement. In P.5 References added reference to MSFC Form 4531. In 1. Definitions deleted term "existence." Updated paragraphs 2.1.3.2, 2.6.1, 2.11.2, CH4.1.1, CH4.1.2 and new Figure 1 to address restored cancelled documents. In 2.6.1 replaced Figure 1 with MSFC Form 4531 and deleted Figure 1. In 4. added specific records for NASA Technical Standards Program Office. In 4.1.6 updated NRRS to 1/26.5/B, and added note after CH2.3 and CH4.3.4 to address EMC concurrence/approval. In CH4.1.2 replaced "the format provided by the MSFC Technical Standard DCB Secretariat. An example proposal format is shown in Figure 1" with "MSFC Form 4531." Updated reference to Multi-program Charter to MSFC Technical Standards Charter. In CH4.8.2 deleted reference to MPDMS automatically sending annual review notice, secretariat will send notice. Chapter 4 and Figure 1 were applicable, replaced term "document" with term "MSFC Technical Standard."
Revision	B	8/14/2013	Major rewrite. Updated Title to include Standard Data Requirement Descriptions. Updated to state MPDMS utilized for electronically managing and storing MSFC Technical Standard DCB review data. The NASA Tech standards information has been moved to MPR 7120.1.
Change	1	4/3/2014	On 4/3/14, at the request of the OPRD, an administrative change was made to the Title by adding an "s" to "Requirements". Changes were made throughout the document to correct and consistently use the acronyms "DRD and DRL" (DRD should be referenced as Data Requirements Description and DRL Data Requirements List) and other minor format edits. Updated Appendix A on Applicable Document definition for clarity. Updated throughout document where applicable to remove the "/" and replace with comma, the word "and" or "or".
Change	2	9/21/2017	On 9/21/17, at the request of the OPRD, an administrative correction was made to the Expiration date on the cover which was August 14, 2015 and should have been August 14, 2018.
Revision	C	11/30/2017	Major rewrite: a. <u>General</u> . Updated multiple sections to make responsibilities and processes clearer, to reflect processes that are already being implemented but were not documented in MPR 8070.1, and to improve the flow of the MPR by rearranging and renumbering sections. b. <u>MSFC Technical Standards DCB-related responsibilities moved into Chapter 1 Responsibilities</u> . Moved responsibilities related to the MSFC Technical Standards DCB of the Engineering Director, MSFC Technical Standards DCB Chairperson, and Managers of DCB Member organizations from deleted section 2.3.3 in Chapter 2 to Section 1.1 MSFC Technical Standards Responsibilities c. <u>DCB Secretariat inputs to MPDMS instead of OPRDs and DCB Members; External formats used for comment collection and resolution</u> . Updated multiple sections related to MSFC Technical Standards in Chapter 1 Responsibilities and Chapter 2 related to the MSFC Technical Standards control process, to identify that the OPRDs and DCB Members communicate and provide review responses to the DCB Secretariat, and the DCB Secretariat does all inputs into the MPDMS electronic system instead

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			<p>of the OPRDs and DCB Members, and that formats external to the electronic system (e.g., Excel spreadsheet) are utilized for comment collection, consolidation, and resolution.</p> <p>d. <u>MSFC Technical Standards Annual Review changed to Periodic Review.</u> Updated sections 1.1.7 and 2.10 to change the annual review of MSFC Technical Standards by the OPR organizations from an annual review to periodic review, typically every 2 years or as designated by the DCB Chairperson, and every 5 years at a minimum.</p> <p>e. <u>MSFC Technical Standard Proposal and Preparation Updates.</u> Updated section 2.1 and section 2.2 on MSFC Technical Standards proposals and preparation to identify processes that are already in use, but were not documented in MPR 8070.</p> <p>(1) <u>Section 2.1, 2.1.1 and 2.1.3 Propose Revision to Existing MSFC Technical Standard.</u> Added the process for proposing a revision to an existing MSFC Technical Standard that requires the OPRD to submit rationale and a summary of planned changes for review and concurrence by the DCB Chairperson prior to revision preparation and submittal.</p> <p>(2) <u>Section 2.1.1 Criteria for MSFC Technical Standard.</u> Added program, project, contract, organization usage-need of MSFC Technical Standard as a proposal criteria.</p> <p>(3) <u>Section 2.1.2.3 Disposition Proposal [for new standard].</u> Updated process definition for proposal of a new standard to identify that the proposal is approved in the MSFC Form 4531 instead of by memo, and proposal extension or cancellation requests are also documented using the MSFC Form 4531.</p> <p>(4) <u>Section 2.2.3 Document Technical Content.</u> Added MIL-STD-961, MIL-STD-962, and MIL-STD-967 as content guidance for MSFC Technical Standards. The MIL-STDs are already being utilized by OPRDs per DCB Secretariat direction but was this not documented. These MIL-STDs were previously required for use when creating MSFC Technical Standards per MWI 7120.4, but when the MWI was cancelled in 2013, these references did not get transferred into MPR 8070.1.</p> <p>(5) <u>Section 2.2.6 Language Usage.</u> Added specific language usage requirements that are consistent with the MIL-STDs to ensure clarity of expectations for requirements and guidance verb usage.</p> <p>(6) <u>Section 2.2.9 Revision Adherence to Content-Format Rules.</u> Added paragraph to explain expectation for OPRDs on revisions to adhere to the latest requirements for content and format when possible, but allows flexibility if programs/project or contract documentation may be affected.</p> <p>f. <u>Deleted sections previously numbered 2.3.1 and 2.3.2</u> related to the MSFC Technical Standards DCB responsibilities and relocated these items to Chapter 1 Responsibilities.</p> <p>g. <u>MSFC Technical Standards Notification to NASA Technical Standards Program.</u> Added section 2.7 identifying notification to the NASA Technical Standards Program of approved and cancelled MSFC Technical Standards, which is a process that has been in place and implemented, but was not documented in MPR 8070.1.</p> <p>h. <u>Deleted Section 3.5 Maintain Data Procurement Documents (DPDs).</u> Deleted this section because development and maintenance of DPDs is not covered by this document.</p>

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PREFACE

P.1 PURPOSE

To establish the Center-specific requirements, responsibilities and procedures for MSFC Technical Standards activities per the authority of NPD 7120.4, and for MSFC Standard Data Requirements Descriptions (DRD) activities per the authority of NPR 7123.1 (i.e., Technical Data Management Process).

P.2 APPLICABILITY

- a. This MPR applies to Center personnel, programs, projects, and activities, including contractors and resident agencies to the extent specified in their respective contracts or agreements. (“Contractors,” for purposes of this paragraph, include contractors, grantees, Cooperative Agreement recipients, Space Act Agreement partners, or other agreement parties.)
- b. This MPR applies to the Michoud Assembly Facility.
- c. This MPR applies the following: all mandatory actions (i.e., requirements) are denoted by statements containing the term “shall.” The following terms also apply: “may” or “can” denote discretionary privilege or permission, “should” denotes a good practice and is recommended, but not required; “will” denotes expected outcome, and “are/is” denotes descriptive material.
- d. This MPR applies the following: all document citations are assumed to be the latest version unless otherwise noted.

P.3 AUTHORITY

- a. NPD 7120.4, NASA Engineering and Program/Project Management Policy
- b. NPR 7123.1, NASA Systems Engineering Processes and Requirements

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. NRRS 1441.1, NASA Records Retention Schedules
- b. MPD 1150.1, Establishment of Councils, Boards and Committees
- c. MPR 2800.2, MSFC Information Technology Services
- d. MWI 1280.4, MSFC Quality System Deficiency Notice System
- e. MGM 7120.3, MSFC Data Management Guidance

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- f. MSFC-STD-555, MSFC Engineering Documentation Standard
- g. MSFC Form 4531, MSFC Technical Standard Proposal
- h. Charter MC-06, MSFC Technical Standards Document Control Board (DCB)
- i. MSFC Technical Standards Document Control Board (DCB) Membership Memo
- j. STD/DM-DRD, Standard/Data Management -Data Requirements Description
- k. MIL-STD-961, Department of Defense Standard Practice Defense and Program-Unique Specifications Format and Content
- l. MIL-STD-962, Department of Defense Standard Practice Defense Standards Format and Content
- m. MIL-STD-967, Department of Defense Standard Practice Defense Handbooks Format and Content

P.5 MEASUREMENT/VERIFICATION

- a. MSFC Technical Standards are reviewed periodically and MSFC Standard DRDs are reviewed annually by the Offices of Primary Responsibility (OPRs) to verify that the content is correct.
- b. All of the requirements in this MPR are subject to verification through established audit processes (e.g., internal and external Quality Management System (QMS) audits).

P.6 CANCELLATION

MPR 8070.1B, Administration of MSFC Technical Standards and MSFC Standard Data Requirement Descriptions, dated August 14, 2013

Original signed by

Todd A. May
Director

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CHAPTER 1. RESPONSIBILITIES

1.1 MSFC Technical Standards Responsibilities

1.1.1 MSFC Engineering Director shall:

1.1.1.1 Designate the MSFC Technical Standards Document Control Board (DCB) Chairperson (MPD 1150.1, Charter MC-06).

NOTE: This designation is documented in the MSFC Technical Standards DCB Membership Memo.

1.1.1.2 Designate the engineering organization responsible for the MSFC Technical Standards DCB Secretariat who is responsible for the MSFC Technical Standards control process administration.

NOTE: This designation is documented in the MSFC Technical Standards DCB Membership Memo.

1.1.2 MSFC Technical Standards DCB Chairperson shall:

1.1.2.1 Approve development of new MSFC technical standards or restoration of cancelled MSFC technical standards.

1.1.2.2 Ensure MSFC technical standards have been reviewed for adequacy and act as the approving authority for the baseline release and any subsequent revisions or cancellations of MSFC technical standards prior to issue to perform work.

a. Make control process determinations and grant exceptions to MSFC Technical Standard control processes, in areas such as document revision redline requirement, control process time periods, need for additional reviews, and whether a DCB meeting is required.

b. Have authority to disposition an OPR-initiated MSFC Technical Standard proposal or document without DCB Member review and disposition, on an exception basis. The rationale for not using the standard DCB review and disposition process will be documented and provided to the DCB Members, along with notification of the authorized MSFC Technical Standard proposal or document.

1.1.3 Director/Manager of MSFC Technical Standards DCB Member organizations shall:

1.1.3.1 Designate a member and an alternate to serve as DCB members empowered to act for the organizational director or manager who is ultimately responsible for the areas covered by the members.

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1.1.3.2 Provide member-alternate names to the DCB Secretariat as updates occur.

1.1.4 MSFC Technical Standard DCB Members and/or Alternates shall:

1.1.4.1 Review MSFC Technical Standards documentation for adequacy, critically evaluate, and disposition draft documentation (including any pertinent background information), coordinate appropriate review of the MSFC Technical Standard within the Member’s organization, and provide a consolidated evaluation and disposition representing the organization’s position to the DCB Secretariat.

1.1.4.2 Review proposals for new or restored cancelled MSFC Technical Standards, coordinate appropriate review of the MSFC Technical Standard within the Member’s organization, and provide a consolidated evaluation and disposition representing the organization’s position to the DCB Secretariat.

1.1.4.3 Provide a mandatory response including their organization’s disposition for each MSFC Technical Standard document and MSFC Technical Standard proposal that is in review.

1.1.5 MSFC Technical Standards DCB Secretariat shall:

1.1.5.1 Prepare the DCB membership memorandum and any changes thereto for the Chairperson’s signature and distribute the memorandum.

1.1.5.2 Prepare and distribute the DCB meeting agenda and minutes for formal DCB meetings, when DCB meetings are required by the DCB Chairperson. Agendas establish the DCB meeting date, time, and location; identify the presenter, and the materials to be presented; and include any due or past due items or actions. Minutes of meetings provide the meeting date and location, a list of attendees, a list of agenda items and their disposition, and action items assigned with due dates or actions closed at the meeting.

1.1.5.3 Track action items to closure for the DCB.

1.1.5.4 Monitor the process defined in Chapter 2 and provide status reports to the DCB Chairperson.

1.1.5.5 Ensure that Office of Primary Responsibility Designee (OPRD) submittals of MSFC Technical Standard proposals, baselines, revisions, and cancellations meet requirements and guidelines of this MPR.

1.1.5.6 Coordinate with the OPRDs on draft documents and initiate the DCB review process when documents are ready for review.

1.1.5.7 Notify the DCB membership when a draft document is accessible for review.

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1.1.5.8 Maintain documents readily accessible for review.

1.1.5.9 Provide accessibility to pertinent background information for review and approval of documents.

1.1.5.10 Support the DCB to facilitate the documentation review and control process.

1.1.5.11 Notify non-respondent DCB members prior to review closure.

1.1.5.12 Receive DCB member document review disposition and consolidated organization comments, incorporate into complete DCB review record, and provide DCB Member dispositions and comments to the affected OPRD for comment resolution.

1.1.5.13 Review the OPRD's comment resolutions and the document redlines that incorporate comment resolutions to verify that all changes are in accordance with the agreed resolutions.

1.1.5.14 Coordinate and implement actions required for DCB disposition and document finalization with the OPRD, Center Export Representative (CER), DCB Members, DCB Chairperson, and MSFC Documentation Repository per Chapter 2, to ensure the finalized document is posted to the MSFC Technical Standards Master List and the document and process records are captured.

1.1.5.15 Ensure periodic review of the MSFC Technical Standards by initiating an action to the OPR organizations as identified in Chapter 2.

1.1.6 MSFC Program/Project Managers or Designees, shall:

Assess the impact of changes to MSFC technical standards being used as program/project and contract requirements, during the organization review process coordinated by their organization's MSFC Technical Standards DCB member, and provide documentation of impacts, as applicable, to their organization's MSFC Technical Standards DCB Member.

1.1.7 Director/Manager of OPR organizations, or designated personnel shall:

1.1.7.1 Submit MSFC Technical Standard proposal information (refer to MSFC Form 4531) to the MSFC Technical Standard DCB Chair for development of any new or restoration of cancelled MSFC Technical Standards.

1.1.7.2 Assign an OPRD for each MSFC Technical Standard approved for development by the DCB Chair.

1.1.7.3 Ensure a periodic review of MSFC Technical Standards documents for which the organization has responsibility is conducted. The review ensures that the documentation is current.

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NOTE: This OPR review is typically conducted as part of the MSFC Technical Standards periodic review, which is initiated by the DCB Secretariat on behalf of the DCB Chairperson.

1.1.8 OPRD for MSFC Technical Standards shall:

1.1.8.1 Define, prepare, and submit draft document for review, revisions thereto, and cancellations for assigned documents in accordance with Chapter 2.

1.1.8.2 Ensure that the proposed changes are identified in the document (i.e., use the revision tool in Microsoft Word®; fill in the Document History Log).

1.1.8.3 Ensure pertinent background information is provided for review and approval of baseline, revision, and cancellation of the document.

1.1.8.4 Obtain document/drawing checking prior to Center review.

1.1.8.5 Specify any recommended restrictions to the Center Export Representative for accessibility of the draft document(s) submitted for review and final document(s) submitted for approval.

1.1.8.6 Ensure proper review has been completed by affected organizations.

1.1.8.7 Resolve comments submitted during DCB review, and bring issues to the DCB Chairperson for decision if comments cannot be resolved. Present changes resulting from comment resolution at a formal DCB meeting when required.

1.1.8.8 Prepare final document, incorporate the changes determined by the DCB, and submit for approval.

1.1.9 CER shall:

Provide approval/concurrence or disapproval of the OPR recommendation for document export control restrictions and verification of a document's export control markings before it is placed into draft review or onto the Master List.

1.1.10 MSFC Technical Standards Master List Custodian (MLC) shall:

1.1.10.1 Establish a Master List that provides, as a minimum, the following six items of information for each approved MSFC Technical Standard:

- a. Unique document number.
- b. Revision level of the correct version.

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- c. Document title/subject.
- d. Effective date.
- e. OPRD organizational code or proper identification.
- f. Document location.

1.1.10.2 Provide a readily-accessible Master List to users to preclude the use of invalid and obsolete documents.

1.1.10.3 Remove promptly any invalid and obsolete documents from access and the Master List.

1.1.11 The MSFC Documentation Repository shall:

1.1.11.1 Store and serve as the record custodian of the official record of MSFC Technical Standards.

1.1.11.2 Maintain the controlled electronic file of MSFC Technical Standards and provide electronic access to users, providing hard copies upon request.

1.1.12 Center Personnel (Users):

1.1.12.1 May participate in reviews of MSFC Technical Standards documentation, submitting any comments to their respective DCB members. (Access to the current DCB Membership Memo is available through the Marshall Integrated Document Library (MIDL) under MSFC Technical Standards).

1.1.12.2 Should assure against unintended use of any previous/obsolete version.

1.1.12.3 May report MSFC Technical Standard deficiencies in accordance with MWI 1280.4, specifically identifying suggested revisions.

1.1.12.4 Should clearly document the specific version authorized for use when standards are used in requirements.

1.2 MSFC Standard DRDs Responsibilities

1.2.1 Center Data Requirements Manager (CDRM) shall:

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1.2.1.1 Maintain and control approved set of Standard DRDs. These standard DRDs are generated, reviewed, and approved by their applicable OPRs for technical completeness and integrity.

1.2.1.2 Coordinate the issuance of new, revised, or cancelled Standard DRDs.

1.2.1.3 Solicit Standard DRD OPR and provide information in Data Requirements Management System (DRMS) OPR Matrix.

1.2.1.4 Encourage standard DRD OPRs to provide sample Statement of Work (SOW) or Performance Work Statement (PWS) language and any restrictions on tailoring.

1.2.1.5 Ensure proper format, administrative compliance, and applicability to particular categories, and assign standard DRD identifier.

1.2.1.6 Establish new standard data categories as needed and provides final determination of any new standard DRD data categories or re-assignment for an existing DRD.

1.2.1.7 Ensure control of standard DRD version, revision, and cancellation date.

1.2.1.8 Conduct annual standard DRD review for accuracy and currency.

1.2.1.9 Incorporate new and revised Standard DRDs in Portable Document Format (PDF) format into Standards Database and maintain in Microsoft Word®; cancelled DRDs are removed from Standards Database.

1.2.1.10 Assign numbers to Data Procurement Documents (DPDs) and Data Requirement Descriptions (DRLs) and maintain a log of the numbers assigned.

1.2.2 OPR of MSFC Standard DRDs shall:

1.2.2.1 Generate, review, and approve new or revised Standard DRD for technical completeness and integrity.

1.2.2.2 Determine to cancel Standard DRD.

1.2.2.3 Coordinate with other users and with CDRM.

1.2.2.4 Request a data category for a new standard DRD or request a category re-assignment for an existing DRD.

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CHAPTER 2. PROPOSE, PREPARE, CONTROL, REVIEW, APPROVE, AND MAINTAIN MSFC TECHNICAL STANDARDS

Introduction

MSFC Technical Standards are developed to capture and document new technological developments, current best practices, unique NASA and MSFC needs, and significant lessons learned associated with human-rated flight and high-risk evolutions, consolidating this knowledge for NASA and MSFC. These standards establish a level of control over practices and processes that have been identified, such as problem areas or areas contributing to past incidents, near misses, failures, or reduced mission capability. The MSFC Technical Standards DCB is chartered by the Center Director to control the review and disposition of MSFC-specific standards (Baselines, Revisions, and Cancellations). Membership and responsibilities for the DCB are documented in, Charter MC-06. Figure 1 shows the primary steps required to process a MSFC Technical Standard baseline, revision, or cancellation through the DCB.

2.1 Proposal Process for New, Restored, or Revised MSFC Technical Standard.

2.1.1 Ensure Criteria for MSFC Technical Standards are met. MSFC organizations that recognize the need for development of a new MSFC Technical Standard, restoration of a cancelled MSFC Technical Standard or revision of an existing MSFC Technical Standard shall ensure that the following criteria are met prior to submitting a proposal:

2.1.1.1 Voluntary Consensus Standard (VCS), other government (Non-NASA) standards, or NASA Technical Standards (Engineering) Agency-level technical standards do not exist or cannot be adapted.

2.1.1.2 The need does not meet the criteria for an Agency-level standard.

2.1.1.3 The need for the MSFC Technical Standard is a Center-specific specialty with little interest by other Centers, or the Center-level standard is potential forerunner to a NASA or VCS standard.

2.1.1.4 The MSFC Technical Standard is needed or is currently in use by programs, projects, activities, contracts-agreements, or MSFC organizations.

2.1.2 Propose New MSFC Technical Standard or Propose to Restore Cancelled MSFC Technical Standard

2.1.2.1 **Submit Proposal.** OPR organizations identifying the requirement for a new MSFC Technical Standard or to restore a cancelled MSFC Technical Standard shall submit a proposal to the DCB Secretariat utilizing MSFC Form 4531.

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2.1.2.2 Review Proposal. The MSFC Technical Standard DCB Secretariat shall distribute the proposal to the DCB members for review and concurrence.

2.1.2.3 Disposition Proposal. The MSFC Technical Standard DCB Chair or designee shall disposition the MSFC Technical Standard development proposal by authorizing the MSFC Form 4531. Approved proposals are valid for 12 months from the proposal approval date.

2.1.2.4 Request Proposal Cancellation or Extension. If the new standard is not submitted within 12 months from the proposal approval date, the OPRD shall do one of the following:

a. Submit a proposal cancellation request to the DCB Secretariat by revising the previously approved MSFC Form 4531 to request cancellation and add cancellation rationale. The proposal cancellation request will explain why the proposed standard is no longer required.

b. Submit a proposal extension request to the DCB Secretariat by revising the previously approved MSFC Form 4531 to request extension and add extension rationale. The extension request will include an explanation of the delayed submittal and rationale why the standard is still needed.

2.1.2.5 Disposition Proposal Cancellation or Extension. The DCB Chairperson shall disposition the proposal cancellation or extension request. The DCB Chairperson may require DCB Member review prior to disposition, but has authority to disposition the proposal cancellation or extension request without DCB Member review. An extension request is valid for 12 months from the date of the approved extension request, or for the time period stated in the approved extension request. The DCB Chairperson may request the OPR to submit a new proposal per section 2.1.2 instead of dispositioning the extension request.

2.1.2.6 Assign OPRD. For each MSFC Technical Standard authorized for development, the director/manager of the OPR, or designated personnel, shall assign an OPRD for the MSFC Technical Standard and notify the DCB Secretariat of the OPRD assignment.

2.1.2.7 Request Document Number and Prepare Standard. For each MSFC Technical Standard authorized for development, the OPR or OPRD shall request a document number from the MSFC Release Desk, and prepare the standard per section 2.2.

2.1.3 Propose Revision to Existing MSFC Technical Standard

2.1.3.1 Submit Proposal for Revision

OPR organizations identifying the need for a revision to an existing MSFC Technical Standard shall contact the DCB Secretariat, and provide requested information about the revision, which will be reviewed by the MSFC Technical Standards DCB Chairperson. The revision information provided includes rationale for the revision, how the MSFC Technical Standard criteria in section 2.1.1 is still being met, and a summary of the changes to be incorporated in the revision.

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2.1.3.2 Disposition Proposal for Revision

The MSFC Technical Standards DCB Chairperson shall review the revision information provided by the OPRD and respond with approval or disapproval to proceed with the development and submittal of the revision.

2.2 Prepare Baseline or Revised MSFC Technical Standard

The OPRD shall prepare a Draft baseline or revised MSFC Technical Standard which meets the following requirements.

2.2.1 Document Templates

MSFC Technical Standards shall utilize the document templates provided on the MSFC Integrated Document Library under MSFC Technical Standards.

2.2.2 Document Format Guidelines

MSFC Technical Standards should meet the format guidelines identified in the templates and provided by the DCB Secretariat.

2.2.3 Document Technical Content

The MSFC Technical Standard document content should meet the guidelines of MIL-STD-961 for specifications, MIL-STD-962 for standards, and MIL-STD-967 for handbooks. The primary document sections identified in the MIL-STDs are incorporated into the MSFC Technical Standards templates, with some tailoring to meet MSFC usage. The MIL-STDs provide guidance for the contents of each section, and whether requirement statements should be included in the section. Technical content and technical editing of MSFC Technical Standards are the responsibility of the OPR, both during preparation and for updates which occur during the review and document finalization.

2.2.4 Document Numbers

MSFC Technical Standards shall be numbered with a unique “MSFC-” number assigned by the MSFC Release Desk in accordance with MSFC-STD-555 [(e.g., MSFC-SPEC-1234, MSFC-STD-2345, MSFC-HDBK-3456)].

2.2.5 Document Revision Scheme

MSFC Technical Standards shall follow the revision scheme identified in MSFC-STD-555 (i.e., Baseline, A, B, C, D, etc., revision letters I, O, Q, S, X and Z are skipped).

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2.2.6 Language Usage

MSFC Technical Standards shall utilize the following language to ensure clarity between requirements and guidance:

- a. Use “shall” whenever a requirement is intended to express a provision that is binding.
- b. Use “will” to express a declaration of purpose on the part of the Government for documents used in contractors or agreements. It may be necessary to use “will” in cases when simple futurity is required.
- c. Use “should”, “may”, or “can” to express non-mandatory provisions.
- d. “Are” and “is” may be used to denote descriptive material, but should not be used to express mandatory provisions.
- e. Do not use “must” to express a mandatory provision. Use the term “shall.”
- f. Do not use the verbs “shall” and “must” in a handbook as a requirement, since handbooks are for guidance only. These verbs, however, may appear in examples used in a handbook or when quoting a requirement from a specification or standard.

2.2.7 Notice of Availability Limitation Marking

MSFC Technical Standards shall be marked with a Notice of Availability Limitation. Guidance on markings is provided in MGM 7120.3.

2.2.8 Prepare Draft Revision of MSFC Technical Standard

2.2.8.1 Documentation of Proposed Changes in a Revision

Revised MSFC Technical Standards shall be prepared by redlining proposed changes in a copy of the currently approved document using the Microsoft Word® “track changes” tool.

NOTE: Microsoft Word® versions of standards approved after 2011 are stored in the MSFC Documentation Repository, and should be requested from the DCB Secretariat. If the Microsoft Word® version of a standard is not available from the MSFC Documentation Repository, the OPR is responsible for creating a Microsoft Word® copy of the approved standard, in coordination with the DCB Secretariat.

2.2.8.2 Exception to Redlining Proposed Changes

Requests for exception to redlining proposed changes including rationale shall be submitted to the DCB Secretariat for decision from the DCB Chairperson. Exception to redlines may be considered if the planned changes constitute a major rewrite and the use of redlines would not be value-added.

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2.2.9 Draft Revision Adherence to Content, Format, Templates, and Language Usage Requirements-Guidance

When preparing a Draft Revision, OPRDs are requested to adhere to the latest content, format, template, and language usage requirements and guidance to the extent practical. Adherence with the latest requirements and guidance in these areas is not intended to interfere with existing program/project or contractual usage or cause undue resource burden. For example, renumbering or renaming of document titles and document sections may not be required if the previous revision is already utilized in program/project or contract requirements and verifications, where these updates would force changes in program/project and contractor documents. The DCB Secretariat will discuss requested updates with the OPRD, and any issues will be resolved with OPR and DCB Secretariat organization management, with the DCB Chairperson's decision requested as needed.

2.3 Control Process for MSFC Technical Standards

Each MSFC Technical Standard draft baseline version, draft revision, or proposed cancellation shall be reviewed by the DCB Members and dispositioned by the DCB Chairperson. Formal DCB meetings will be called as required. The tasks for the review and disposition process are described in sections 2.3.2 – 2.3.13, and 2.4 (cancellations). The Multi-program Document Management System (MPDMS) is being utilized as the electronic system to support the MSFC Technical Standards control process.

2.3.1 Control Process Times (Baseline, Revision, Cancellation)

The following table provides time period guidance for specific tasks within the MSFC Technical Standards control process. All time periods are monitored by the DCB Secretariat. For any time periods that exceed the maximum recommended time, the DCB Secretariat will coordinate with the DCB Chairperson to determine the required action.

Task	Time Period
DCB Review of Draft Baseline or Draft Revision (A, B, etc.)	10-20 working days
DCB Review of Proposed Cancellation	10-20 working days
OPRD Comment Resolution and Incorporation of Changes into Draft	10-40 working days
Incorporation of DCB Disposition and Upload of Final Document	10 working days

NOTE: The time for the OPRD to prepare the MSFC Technical Standard, obtain internal technical review and technical editing, and obtain pre-review by the DCB Secretariat and CER is not included in the times listed. Also, the times for DCB Secretariat processing tasks during the review and disposition process are not listed. The times specified are for fairly complicated technical documentation. Some MSFC Technical Standards may be processed in considerably less time, whereas highly complicated documents may take more time.

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2.3.2 OPRD Submit to DCB Secretariat and CER for Pre-Review (Baseline, Revision). The OPRD shall:

2.3.2.1 Provide the draft Baseline or draft Revision to the DCB Secretariat for format checking, and coordinate with the DCB Secretariat to finalize the Draft for review.

2.3.2.2 Provide the draft document securely (e.g., encrypted email to transmit a restricted document) to the CER that supports the OPRD's organization for pre-review and ensure the CER is aware that they will receive an electronic CER review task when the document is uploaded for review. This pre-communication should help expedite completion of the CER electronic review task when it is received.

2.3.3 DCB Secretariat Submit for CER Review and DCB Review (Baseline, Revision)

The DCB Secretariat shall:

2.3.3.1 Upload either a baseline or revised MSFC Technical Standard as "draft" along with identification information about the document into the electronic system.

2.3.3.2 Select the CER that supports the OPRD's organization.

2.3.3.3 Assign a due date for DCB members' review using the times recommended in section 2.3.1.

NOTE: The document will be distributed for DCB review after the electronic CER review is completed. Therefore, the DCB review due date specified should include both the DCB review period plus the estimated time for the CER to complete their electronic review task.

2.3.4 CER Review (Baseline, Revision)

The MSFC Technical Standard is routed to the CER of the organization with OPR responsibility for the MSFC Technical Standard. The CER shall assess the notice of availability limitation marking before being distributed for DCB review. If the CER agrees with the marking applied by the OPRD, the document is distributed for DCB review. If the CER does not agree with the marking, the document is returned to the OPRD for correction.

2.3.5 DCB Member Review (Baseline, Revision, Cancellation)

The DCB members will receive a notification of the document review from the electronic system and/or the DCB Secretariat, and shall distribute the review request within their organization as needed. The DCB member consolidates their organization's comments and provides an organization disposition and any comments by the due date. After the due date, late comments do NOT have to be accepted by the OPRD. The DCB member/alternate has three options for late comments:

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2.3.5.1 Hold them and submit in the next review cycle for the document;

2.3.5.2 Forward to the OPRD for consideration; or

2.3.5.3 Request the Chair to direct incorporation, providing rationale of why the proposed late changes may be included in the current review cycle.

2.3.6 OPRD Resolve Comments (Baseline, Revision, Cancellation)

The OPRD shall:

2.3.6.1 Receive review responses from all MSFC Technical Standard DCB members through the DCB Secretariat.

2.3.6.2 Determine resolutions for all comments, and document the resolutions per DCB Secretariat instructions. For Baselines and Revisions, for comment resolutions that affect the document text, it is recommended that changes be incorporated into the Draft document as described in section 2.3.7, and the proposed redlines provided to the commenters for review as part of the comment resolution process.

2.3.6.3 Coordinate with the MSFC Technical Standard DCB member reviewers and obtain agreement with comment resolutions, document the reviewer responses within the consolidated comment format, and provide the consolidated comments with resolutions to the DCB Secretariat.

a. If late comments were accepted by the OPRD, enter the comments and resolutions into the consolidated comment format, under the appropriate organization.

b. If the OPRD is unable to satisfactorily resolve the DCB member(s) comment(s), notify the DCB Secretariat to schedule a meeting with the Chair for a discussion and decision on the resolution of the unresolved issue(s).

2.3.7 OPRD Incorporate Changes in Draft Document (Baselines, Revisions)

The OPRD shall incorporate changes into the text of the MSFC Technical Standard as described below, and provide the redlined document which includes resolved comment incorporation to the DCB Secretariat.

2.3.7.1 Baseline Draft version of Technical Standard: Utilize the “track changes” tool in Microsoft Word® to incorporate comment resolutions into the draft.

2.3.7.2 Revision Draft Technical Standard: Retain the original redlines, incorporate comment resolutions by using the “track changes” tool in Microsoft Word®, plus highlight (yellow preferred) the changes resulting from comment resolution to visibly differentiate the comment resolution redlines from the original proposed redlines.

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2.3.8 OPRD Prepare Draft 2 When Required (Baseline, Revision)

If the changes due to comment resolution are extensive, and the DCB Chairperson determines that a complete new review by the DCB Members is needed, the OPRD shall prepare DRAFT 2, and forward to the DCB Secretariat to start another review cycle.

2.3.8.1 Draft 2 Technical Standards will retain redlines that identify proposed Draft 1 changes.

2.3.8.2 Draft 2 Technical Standards will be highlighted, yellow preferred, to identify the new proposed changes for the Draft 2 review.

NOTE: The Chair may direct a subsequent draft be prepared as necessary.

2.3.9 DCB Disposition MSFC Technical Standard (Baseline, Revision, Cancellation)

2.3.9.1 The DCB Secretariat verifies the OPRD's comment resolutions against the redline draft document (baseline, revision) to verify that all changes are in accordance with the agreed resolution.

2.3.9.2 The DCB Secretariat provides the DCB Member comments, OPRD resolutions agreed to by the reviewers, and the redline document (baseline, revision) that incorporates the agreed comments to the DCB Chairperson when a MSFC Technical Standard is ready for disposition.

2.3.9.3 The DCB Chairperson reviews the resolved comments and the redlined document and determines if a DCB meeting is required, or if the disposition will be done outside a DCB meeting.

2.3.9.4 The DCB Chairperson shall disposition the technical standard action (i.e., baseline, revision, or cancellation) as approved or disapproved. When the DCB disposition is done outside a DCB meeting, the DCB Chairperson communicates the disposition to the DCB Secretariat. If a baseline or revision is approved, the DCB Chairperson communicates to the DCB Secretariat any actions that must be completed by the OPRD prior to approval of the finalized document.

a. Per the MSFC Technical Standards DCB Chairperson responsibilities in 1.1.2.2.b, the DCB Chairperson has the authority to disposition a MSFC technical standard without review and disposition by the DCB membership. Rationale for not submitting the MSFC Technical Standard through the established review and disposition process will be provided to the DCB membership with notification of the disposition.

NOTE: In accordance with the Engineering Management Council (EMC) Charter, the EMC will review and provide a MSFC Engineering position on new, revised, or cancelled MSFC Technical Standards in those instances where alternate or dissenting opinions are encountered by the MSFC Technical Standards DCB. MSFC Technical Standard baselines, revisions, and cancellations may also be presented to the EMC for information

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or to obtain a MSFC Engineering position when recommended by the Engineering Directorate's MSFC Technical Standards DCB Member.

2.3.10 OPRD Finalize Redlined Document (Baseline, Revision)

If the draft technical standard was approved by the DCB, the OPRD shall:

2.3.10.1 Incorporate any final comments approved by the DCB per 2.3.9 into the redlined document and provide to the DCB Secretariat.

NOTE: The OPRD is responsible for verifying that all comments were incorporated as agreed with the commenters and as directed by the DCB.

2.3.10.2 Provide the final redlined (and highlighted) document securely (e.g., encrypted email to transmit a restricted document) to the CER that supports the OPRD's organization for pre-review.

2.3.11 DCB Secretariat Finalize Document for DCB Chairperson Approval (Baseline, Revision)

2.3.11.1 The DCB Secretariat creates the final clean Microsoft Word® document from the OPRD's final redline, completes the final format check, and applies the Effective Date to match the planned DCB Chairperson's electronic approval date.

2.3.11.2 The DCB Secretariat uploads the final document to the electronic database for CER review and DCB Chairperson's approval.

2.3.12 CER Review of Final Document (Baseline, Revision)

The CER shall review the OPRD's notice of availability limitation marking on the finalized document to verify that the marking is appropriate for the finalized content.

2.3.13 DCB Chairperson Approve Final Document (Baseline, Revision, Cancellation)

2.3.13.1 For Baselines and Revisions, the DCB Chairperson shall approve the final document in the electronic database, which authorizes the document to be placed on the Master List, and authorizes the DCB Secretariat to transmit the official record to the MSFC Documentation Repository.

2.3.13.2 For Cancellations, the DCB Chairperson shall approve the cancellation, which authorizes the document to be removed from the Master List, and authorizes the DCB Secretariat to inform the MSFC Documentation Repository of the cancelled document.

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2.4 Cancel MSFC Technical Standards

2.4.1 The OPRD shall contact the DCB Secretariat, and receive instructions to prepare cancellation rationale. To support the cancellation rationale, it is recommended to perform a cancellation impact assessment and identify active documentation from programs/projects, contracts, Center-level, or organizations that utilize the standard, and coordinate with the organizations that are anticipated to be most affected by the cancellation.

2.4.2 The OPRD shall provide the cancellation rationale and cancellation impact assessment results to the DCB Secretariat.

2.4.3 The DCB Secretariat shall distribute the cancellation request to the DCB Members for review and organization disposition.

2.4.4 The cancellation request will be reviewed and dispositioned using the process described in section 2.3.5 DCB Member Review, 2.3.6 OPRD Resolve Comments, and 2.3.9 DCB Disposition MSFC Technical Standard (Cancellation).

2.4.5 If the DCB Disposition is to approve the cancellation request, the DCB Secretariat shall input the cancellation request into the electronic database for DCB Chairperson approval as specified in section 2.3.13 DCB Chairperson Approve Final Document (Cancellation).

2.5 Maintain MSFC Technical Standards Master List and Transmit Document Records to the MSFC Documentation Repository

2.5.1 The official Master List for MSFC Technical Standards shall reside in the electronic database and be made available to the MSFC Integrated Document Library Web page.

2.5.2 The electronic database Master List document hyperlinks shall direct the user to the MSFC Documentation Repository where the official MSFC Technical Standard record is maintained.

2.5.3 The MSFC Documentation Repository shall maintain the official file and make the approved current MSFC Technical Standard available electronically through a hyperlink.

2.5.4 The electronic database administrator shall maintain the records of preparation, review and approval, cancellation, etc., for the “M” (Multi-program/Project common-use documents for the Multi-program/Project common use DCB) DCB.

2.5.5 The DCB Secretariat shall ensure:

2.5.5.1 That the DCB-approved MSFC Technical Standard is transmitted to the MSFC Documentation Repository in both PDF and Microsoft Word® formats;

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2.5.5.2 The MSFC Documentation Repository link to the electronic MSFC Technical Standard is incorporated into the electronic database Master List; and

2.5.5.3 That invalid or obsolete MSFC Technical Standards are promptly identified and removed from the electronic database Master List.

2.5.5.4 That a notification of Cancelled MSFC Technical Standards is provided to the MSFC Documentation Repository.

2.6 Disposition Records of MSFC Technical Standards

2.6.1 The MSFC Documentation Repository shall store the official record of the controlled electronic files, disposition the records in accordance with the NRRS 1441.1 schedule, and provide technical documentation services per MPR 2800.2.

2.6.2 Records resulting from this MPR shall be maintained and dispositioned in accordance with Appendix D.

2.7 Notify NASA Technical Standards Program of Approved or Cancelled MSFC Technical Standards

2.7.1 The MSFC Technical Standards DCB Secretariat shall provide a notification to the NASA Technical Standards Program (NTSP) of each approved or cancelled MSFC Technical Standard through the NASA Technical Standards System (NTSS) Standards Update Notification System (SUNS), and ensure access to the approved MSFC Technical Standards. The MSFC Technical Standards notification and access enables the NTSP to provide access to Center-level standards through the NTSS.

2.8 Perform Periodic Review of MSFC Technical Standards

2.8.1 Organizational managers shall conduct periodic reviews of the MSFC Technical Standards that their organization is responsible for to ensure that the MSFC Technical Standards are still needed and the document content is current.

2.8.2 Notices of the review shall be distributed by the DCB Secretariat, every 2 years or as directed by the DCB Chairperson; periodic review will be conducted every 5 years at a minimum.

2.8.3 Results of the periodic reviews are records which are maintained by the DCB Secretariat.

2.9 Assure Against Unintended Use of Obsolete MSFC Technical Standards

2.9.1 Users shall verify that the correct version of a MSFC Technical Standard is used in the work being performed by checking revision status on the master list.

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2.9.2 To ensure against unintended use of any previous or obsolete version of an MSFC Technical Standard, all users shall comply with one of the following provisions:

2.9.2.1 Destroy the copy of the MSFC Technical Standard.

2.9.2.2 If retained, mark “FOR HISTORICAL PURPOSES ONLY,” “FOR LIMITED APPLICABILITY,” “REFERENCE,” etc. (e.g., on the face of the document, a file cabinet or drawer, or a bookcase or shelf).

2.9.3 Users shall ensure that authority to use versions other than the current version is documented by contractual arrangement, customer agreement, or other authority.

2.10 Report MSFC Technical Standards Deficiencies

Any person may report a deficiency in accordance with MWI 1280.4.

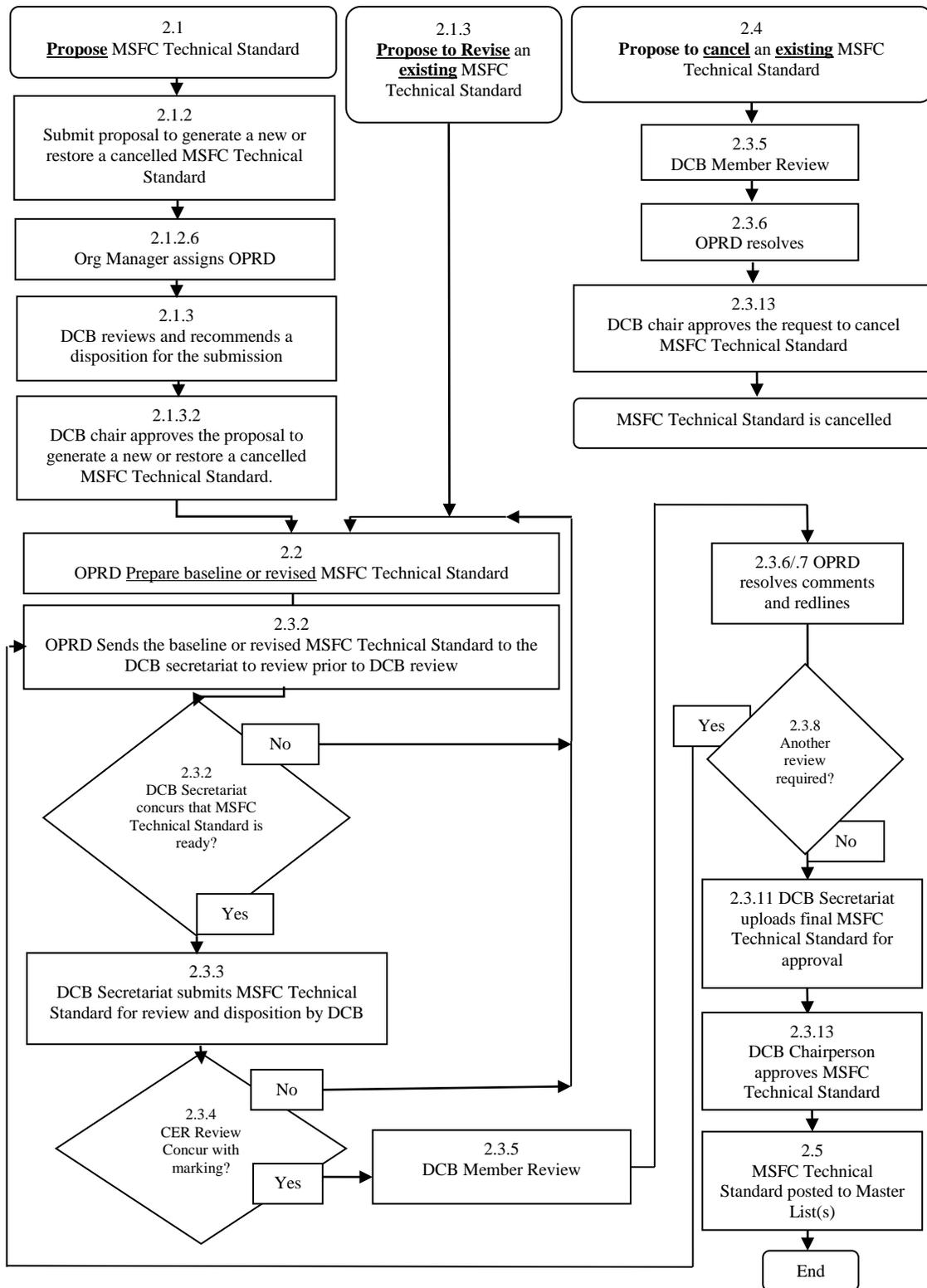


Figure 1. MSFC Technical Standards DCB Flow

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CHAPTER 3. PROPOSE, PREPARE, CONTROL, AND MAINTAIN MSFC STANDARD DATA REQUIREMENTS DESCRIPTIONS

3.1 Propose New Standard DRD

3.1.1 Standard DRD Development and Maintenance. The CDRM shall maintain a set of standard DRDs based on an examination of data requirements used throughout the Center’s history and new requirements identified since the establishment of the original standard DRD set. Issuance of new management directives or regulations, the identification of new requirements, or maturity in functional disciplines may necessitate the creation of new standard DRDs. See Figure 2 for the process of developing a new, revising, or cancelling an existing standard DRD. See Standard/Data Management-DRD (STD/DM-DRD) and MGM 7120.3 for guidance on DRD preparation.

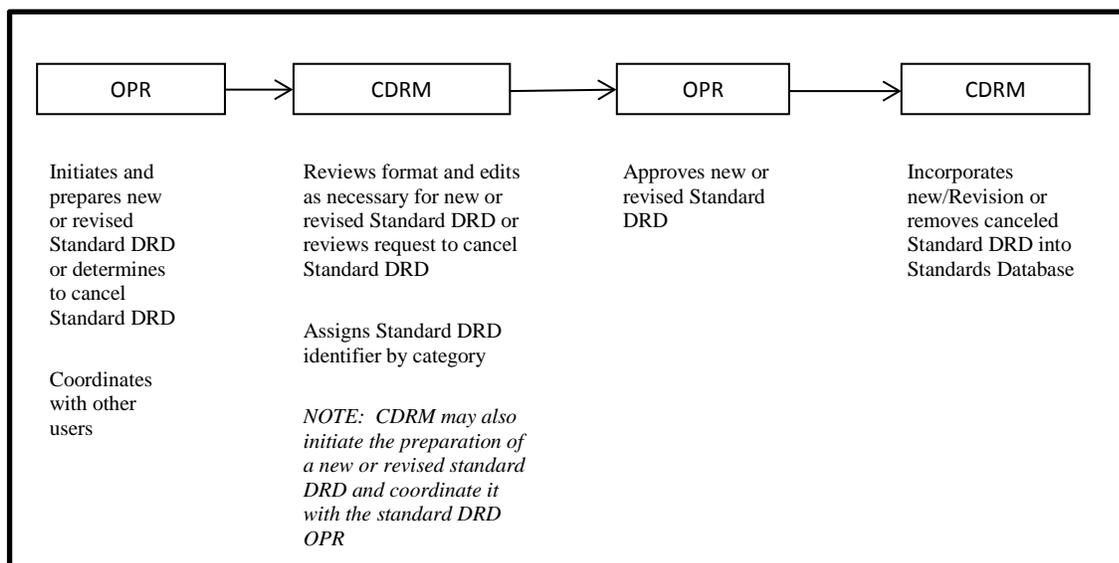


Figure 2. Standard DRD Development (New, Revision or Cancellation)

3.2 Preparation of Standard DRDs

3.2.1 The CDRM shall solicit appointment of two points of contact to serve as OPR designees for each standard DRD. These points of contact are to be considered the experts in the discipline.

3.2.1.1 The names of the OPR designees shall be provided by the CDRM on the MSFC DRMS and OPR matrix. The standard DRDs are verified and approved by the cognizant OPR.

3.2.1.2 The CDRM encourages standard DRD OPRs to provide sample SOW/PWS language, guidance on the application of the standard DRD to specific activities, and instructions for tailoring the DRD (if applicable) to meet the needs of individual activities.

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3.2.1.3 If the Standard DRD OPR requires restrictions on tailoring, these shall be stated in the tailoring instructions. This additional information, if available, is attached to the standard DRD to aid users.

3.2.2 Standard OPR shall:

3.2.2.1 Utilize the same format containing instructions for elements of a DRD as shown on STD/DM-DRD on the DRMS Web site.

3.2.2.2 Present a complete description of a data requirement and prescribe content, format, maintenance, approval, and submittal requirements of the data product.

3.3 Control of Standard DRDs

3.3.1 The CDRM shall maintain and control approved standard DRDs. These standard DRDs are generated, reviewed, and approved by their applicable OPRs for technical completeness and integrity.

3.3.2 The CDRM shall ensure proper format, administrative compliance, and applicability to a particular category(ies).

3.3.3 The CDRM shall assign an alphabetic identifier to each standard DRD.

3.3.3.1 The initial three characters of the standard DRD identifier shall be “STD” followed by two alpha characters representing the appropriate functional data category, e.g., Management (MA), Safety (SA), Logistics Support (LS), and ending with the assignment of three or four characters representing the title or subject of the description, e.g., STD/Configuration Management (CM)-Configuration Management Plan (CMP).

a. The Standard DRD Data Categories are Contractual Data (CD), CM, Design and Development Engineering (DE), DM, Environmental (EE), LS, MA, Materials and Processes (MP), Mission Operations (OP), Quality Engineering (QE), Reliability and Maintainability (RM), SA, Systems Engineering (SE) and Software (SW). Category Definitions are identified in Appendix A.

3.3.3.2 The CDRM shall establish new standard data categories as needed.

3.3.3.3 The CDRM shall provide the final determination of any re-assignment for an existing DRD.

3.3.4 Revisions of standard DRDs shall be controlled by date. The version date is provided in the header area of each standard DRD and on the OPR Matrix.

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3.3.5 The CDRM shall annually require standard DRD OPRs to review OPR designee names and standard DRDs for accuracy and currency.

3.3.6 The date of the latest OPR DRD review shall be noted on the OPR Matrix and the DRMS.

3.3.7 The cancellation date of the DRD shall be noted on the DRD Revision Record filed on the Configuration Management and Data Management (CMDM) Server, maintained by the CM organization.

3.3.8 Standard DRDs are maintained in Microsoft Word® and provided through the DRMS Web site in PDF format.

3.4 Maintain Data Procurement Document and Data Requirements List (DPD and DRL) Number Tracking Log

The CDRM is responsible for assigning numbers to DPDs and DRLs and maintaining a log of the numbers assigned.

3.4.1 The log shall contain information (e.g., project name, data manager, project manager, request for proposal (RFP), and contract number, contractor name) pertinent to each DPD and DRL developed.

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APPENDIX A DEFINITIONS

Applicable Document. A document cited in the text of another document that contains provisions or other pertinent requirements that are directly related to and necessary for the performance of the activities specified by the citing document. Adherence is required. Introduce applicable documents with statements that identify the intended usage (e.g., as required by, in accordance with, according to, per).

Center Data Requirements Manager (CDRM). A specific organization or individual appointed to carry out the Center's responsibility for development and maintenance of Center data requirements. The CDRM has the requisite authority to coordinate internal MSFC data requirement activities.

Configuration Management (CM) DRD Category. This category includes the data that is required for a uniform system of configuration identification, status accountability, and control. This data includes all data down to that level of detail necessary to identify and ensure integrity of the configuration. This category essentially covers the engineering management system to define how and by whom the configuration of the system is controlled. It includes the data that is necessary and primary in controlling the products.

Contractual Data (CD) DRD Category. This category includes the definition of data delivery requirements contained in applicable procurement and regulatory procedures incorporated in or referenced by contractual instruments.

Controlled Electronic File. The electronic data file, secured under authority of the controlling organization, that is the original full-text file that was authorized through an electronic approval/release system, or the electronic file that has been verified to be identical to the approved original when data was authorized through a hardcopy approval/release process. The controlled electronic file represents the content of the official record, though it may or may not be designated as the official record copy.

Correct Version. This is the version that is approved/released by the OPR for use. In the case of external documents (e.g., applicable documents), the correct version is the one authorized for use by the organization that invokes the external document.

Data Management (DM) DRD Category. This category includes the structure for identifying, defining, preparing, receiving, transmitting, controlling, verifying, releasing, status tracking, accounting, and dispositioning (storage, access and records) program/project or activity data and establishing data quality standards for the data and documentation.

Data Requirements Description (DRD). A detailed description of a required data item, including purpose, contents, format, maintenance requirements, and submittal requirements.

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Design and Development Engineering (DE) DRD Category. This category includes data unique to particular design and development disciplines (e.g. electrical, manufacturing, mechanical, structural, thermal, etc.). This category includes the definition of specific engineering requirements; hardware design, analyses, and solutions to implement specifications; analytical and test verification programs necessary to assure design solution adequacy; design, manufacturing and assembly documentation; and controls to ensure design performance reproducibility.

Environmental DRD Category. Data within this category describes the procedures, controls, analytical methods, test methods, and reporting needed to ensure the environmentally compliant handling, processing, and disposal of all hazardous materials and pollutants of a specific project. The data identifies all potential hazards, required restrictions and controls, and mandated limits from concept through project termination in both ground and flight operations.

Handbook (HDBK). A handbook is a guidance document that provides engineering information; lessons learned; possible options to address technical issues; classification of similar items, materials, or processes; interpretative direction and techniques; and any other type of guidance information that may help the Government or its contractors in the design, construction, selection, management, support, or operation of systems, products, processes, or services. (Source: MIL-STD-967)

Historical. Any obsolete or cancelled document retained for historical reference.

Limited Applicability. Applies to marking/using superseded or obsolete documents; user has documented authority to use previous/obsolete document.

Logistics Support (LS) DRD Category. This category includes the data necessary to perform the logistics function, including spare parts analyses and lists of spares. It reflects the logistics plans, programming, analysis, handling, storage, supply, maintenance, support facilities, packaging, Government property management, and schedules.

Maintain Documentation. This category includes providing storage, distribution, reproduction, document revisions, replacing documents in the field with the latest revisions, and disposition of obsolete and invalid documents (i.e., historical, limited applicability, reference, documents, etc.) for Master List documentation.

Management (MA) DRD Category. This category includes that portion of the management system that interfaces with the other data categories and ensures that they are properly integrated. This category includes the data required to plan, review, manage, and control a specific MSFC project. These data also include the management structure supporting the specific program and financial information, performance measurement, progress reporting, make or buy plans, and training plans.

Master List(s). Controlled list(s) of data that identify the correct version authorized for use.

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Master List Custodian(s) (MLC). Individual(s) assigned to process and maintain documentation and create and update the master list each time a document is added, revised, or cancelled.

Materials and Processes (MP) DRD Category. This category includes the definition of specific engineering selections, necessary functional properties, material and hardware level processing criteria, and controls necessary to attain functional property assurance, manufacturing planning, and implementation procedures to assure repeatable and controlled operations.

Mission Operations DRD Category. Data within this category includes the requirements, plans, procedures, and activities required for ground and mission OPs from delivery of system hardware at the launch site through recovery and post-flight OPs. It reflects such areas as long range plans for tracking network and Department of Defense (DOD) support, prelaunch and post-landing support, as well as specific mission requirements such as launch trajectories, specific mission objectives, and personnel requirements

MSFC Technical Standards. A descriptive standard (STD), specification (SPEC), or handbook (HDBK) that is developed, sponsored, or adopted for common use by MSFC. MSFC Technical Standards prior to the approval of this Directive may be other document types (e.g., procedures, reports, requirements, plans, drawings).

MSFC Technical Standard Document Control Board (DCB). A functional body responsible for the review and disposition of all baselines, revisions, and cancellations of MSFC technical standards.

Multi-program Document Management System. Database utilized for electronically managing and storing MSFC Technical Standard DCB review data.

Multiprogram/Project Common-Use Documents. Previous term used for MSFC Technical Standards.

Multiprogram/Project Common-Use DCB. Previous term used for MSFC Technical Standard DCB.

NASA Technical Standards. NASA documents that contain common and repeated use of rules, conditions, guidelines, or characteristics for products or related processes and production methods and related management systems practices. NASA technical standards may contain the definition of terms; classification of components; delineation of procedures; specification of dimensions, materials, performance, designs, or operations; measurement of quality and quantity in describing materials, processes, products, systems, services, or practices; test methods and sampling procedures; or descriptions of fit and measurements of size or strength. Within NASA the broad term “standard” may include the following specific document types: handbooks, specifications, and standards developed by NASA.

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NASA Technical Standards (Engineering). Agency-level technical standards, specifications, and handbooks whose development is sponsored by the NASA Chief Engineer.

Non-NASA Standards. Term used to describe both Voluntary Consensus Standards and Other Government (Non-NASA) Standards collectively.

Office of Primary Responsibility (OPR). The NASA organization with primary responsibility for the content of specific data items or the organization responsible for the process represented by the document. OPR responsibilities may include preparing a document, controlling a document, and reviewing the technical content of a document submitted by a contractor or external organization.

Other Government (Non-NASA) Standards. Technical standards that are originated and published by Government agencies other than NASA (e.g., Department of Defense, Federal Aviation Administration).

OPR Designee (OPRD). Individual(s) appointed by the office of primary responsibility who is/are responsible for a specific document within their area.

Quality Engineering (QE) DRD Category. This category includes data used in planning, controlling, supporting and reporting quality activities; data associated with internal program management systems; and procedures used in applying quality functions to ensure that design and production of end items or the provision of services comply with QE requirements. Quality Engineering ensures that items delivered or services provided fulfill requirements by auditing the processes that minimize variability and provide conformity.

Reliability and Maintainability (RM) DRD Category. This category includes control and review procedures to ensure that component, subsystem, system and software design, manufacture, assembly, and testing produce items that meet the established specifications. It includes RM plans, reliability assessments, reliability status reports, manufacturing process control plans, quality control and inspection plans, and production acceptance testing documents. It includes development, qualification and reliability demonstration testing, reliability assessment of test results, tests of a statistical sampling nature, and manufacturing verification tests to obtain quality assurance

Revision. Any change, modification, or newly-edited version of a document.

Safety (SA) DRD Category. Data within this category describes the procedures, controls, methods, studies, and reporting needed to ensure the safety, health, and environment of all operations of a specific MSFC project and identifies all potential hazards from concept through project termination in both ground and flight operations. It assumes the existence of safety considerations within other appropriate categories and is concerned with integrating and controlling these safety considerations through a central safety program.

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Software (SW) DRD Category. This category includes data used throughout the life cycle to plan, manage, control, and support activities involved in development, testing (including software verification and validation) and use of software products. Software data also includes the product description, product requirements, and validation of software compliance with requirements.

Specification (SPEC). A document that prescribes, in a complete, precise, verifiable manner, the requirements, design, behavior, or characteristics of a system or system component. (Source: NPR 7123.1)

Standard DRD. A data requirement that has been identified for repetitive use.

Standard or Technical Standard. Common and repeated use of rules, conditions, guidelines, or characteristics for products or related processes and production methods and related management systems practices; the definition of terms, classification of components; delineation of procedures; specification of dimensions, materials, performance, designs, or operations; measurement of quality and quantity in describing materials, processes, products, systems, services, or practices; test methods and sampling procedures; or descriptions of fit and measurements of size or strength. (Source: OMB Circular No. A-119).

Systems Engineering (SE) DRD Category. This category encompasses the overarching data necessary to engineer a system product for a particular program, project, or activity. This data integrates across all disciplines to define, develop, and deliver a system product for a particular use, mission, or function. Data in this category includes stakeholder's expectations definition, technical requirements definition, logical decomposition, product integration, product implementation, product verification, product validation, product transition, technical planning, requirements management, interface management, technical risk management, technical assessment, and decision analysis.

Tailoring. The process used to adjust or seek relief from a prescribed requirement to accommodate the needs of a specific task or activity (e.g., program or project). Considerations for Tailoring should include: scope and visibility (e.g., organizations and partnerships involved, international agreements); risk tolerance and failure consequences; system size; system complexity (e.g., human spaceflight vs. flagship science vs. subscale technology demonstration, number of stages and interfaces, technology readiness level); impact on other systems; longevity; serviceability (including on-orbit); constraints (including cost, schedule, degree of insight/oversight permitted with partnerships or international agreements, etc.); safety; technology base; and industrial base. (Source: NPR 7120.5, NPR 7123.1).

Uncontrolled. Copies printed from the Master List System or copies of the signed original document.

Use. Within the definition given in OMB Circular A-119, "use" means incorporation of a standard in whole, in part, or by reference in a procurement action or as program or project requirements or guidance.

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User. Any person who uses or refers to any document during the performance of a specific task.

Voluntary Consensus Standards. Technical Standards that are planned, developed, coordinated, and published by domestic or international organizations using agreed-upon procedures (e.g., American Society of Mechanical Engineers, Government Electronics and Information Technology Association). These technical standards include provisions requiring that owners of relevant intellectual property agree that the intellectual property is made available on a non-discriminatory, royalty-free or reasonable royalty basis to all interested parties.

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APPENDIX B ACRONYMS

CD	Contractual Data
CDRM	Center Data Requirements Manager
CER	Center Export Representative
CM	Configuration Management
CMDM	Configuration Management and Data Management
CMP	Configuration Management Plan
DCB	Document Control Board
DE	Design and Development Engineering
DM	Data Management
DOD	Department of Defense
DPD	Data Procurement Document
DRD	Data Requirements Description
DRL	Data Requirements List
DRMS	Data Requirements Management System
EE	Environmental
EMC	Engineering Management Council
HDBK	Handbook
IDRD	In-house Data Requirements Document
LS	Logistics Support
MA	Management
MIDL	Marshall Integrated Document Library
MLC	Master List Custodian
MGM	Marshall Guidance Manual
MP	Materials and Processes
MPD	Marshall Policy Directive
MPDMS	Multiprogram Document Management System
MPR	Marshall Procedural Requirement

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MWI	Marshall Work Instruction
NARA	National Archives and Records Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NRRS	NASA Record Retention Schedules
NTSP	NASA Technical Standards Program
NTSS	NASA Technical Standards System
OMB	Office of Management and Budget
OP	Mission Operations
OPR	Office of Primary Responsibility
OPRD	Office of Primary Responsibility Designee
PDF	Portable Document Format
PWS	Performance Work Statement
QE	Quality Engineering
RFP	Request for Proposal
RM	Reliability and Maintainability
SA	Safety
SE	Systems Engineering
SOW	Statement of Work
SPEC	Specification
STD	Standard
SUNS	Standards Update Notification System
SW	Software
VCS	Voluntary Consensus Standards

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**APPENDIX C
VERIFICATION MATRIX (Reserved)**

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APPENDIX D RECORDS

The following records are maintained in accordance with NRRS 1441.1:

RECORD	RECORD CUSTODIAN AND RECORD LOCATION	RETENTION
MSFC Technical Standards-		
MSFC Technical Standards- Approved Electronic Versions of MSFC Technical Standards	MSFC Documentation Repository	NRRS 8/114 [8000]: Permanent. Cut off records at close of last applicable programs/projects or at any time in 3-year blocks. Transfer to the National Archives 7 years after cut off.
MSFC Technical Standards- DCB Membership Memorandums (originals)	DCB Secretariat electronically filed in CMDM Server by date	NRRS 1/14/A/2 [1150]: Temporary. Destroy 2 years after termination or dissolution of Committee.
MSFC Technical Standards- DCB Minutes (originals)	DCB Secretariat electronically filed in CMDM Server by date	NRRS 1/14/B/1(a) [1150]: Permanent. Retire to Federal Records Center when 2 years old. Transfer to National Archives and Records Administration (NARA) when 20-years old.
MSFC Technical Standards- Electronic Master List	Maintained electronically in MPDMS by MLC	NRRS 1/72/E [1410]: Temporary. Destroy when superseded, obsolete, or no longer needed.
MSFC Technical Standards- MSFC Form 4531, MSFC Technical Standards Proposal, and associated Proposal Disposition Memos	Maintained by CDRM on CMDM Server	NRRS 8/116 [8000]: Temporary. Destroy/delete 1 year after termination of last applicable program/project.
MSFC Technical Standards- Results of Periodic Reviews	Maintained by DCB Secretariat on CMDM Server	NRRS 1/26.5/B [1280]: Temporary. Destroy when 5 years old.
MSFC Technical Standards- Results of DCB reviews	Maintained electronically in MPDMS by MLC	NRRS 1/26.5/B [1280]: Temporary. Destroy when 5 years old.
MSFC Standard DRDs-		
MSFC Standard DRDs- Center Standard DRDs maintained by approval status, data category and DRD number	Managed by CDRM on CMDM Server	NRRS 8/116 [8000]: Temporary. Destroy/delete 1 year after termination of last applicable program/project.
MSFC Standard DRDs- Current OPR Matrix maintained electronically	Managed by CDRM on CMDM Server	NRRS 8/116 [8000]: Temporary. Destroy/delete 1 year after termination of last applicable program/project.
MSFC Standard DRDs-DPD/ DRL In-house Data	Managed by CDRM on CMDM Server	NRRS 8/116 [8000]: Temporary.

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RECORD	RECORD CUSTODIAN AND RECORD LOCATION	RETENTION
Requirements Document (IDRD)/ Reports of Work Log		Destroy/delete 1 year after termination of last applicable program/project.
MSFC Standard DRDs- Results of Annual Reviews	Managed by CDRM on CMDM Server	NRRS 1/26.5/B [1280]: Temporary. Destroy when 5 years old.

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APPENDIX E REFERENCES

- E.1 OMB Office of Management and Budget Federal Participation in the Development
Circular A-119 and Use of Voluntary Consensus Standards (VCS) and in Conformity
Assessment Activities
- E.2 NPR 7120.5 NASA Space Flight Program and Project Management Requirements